

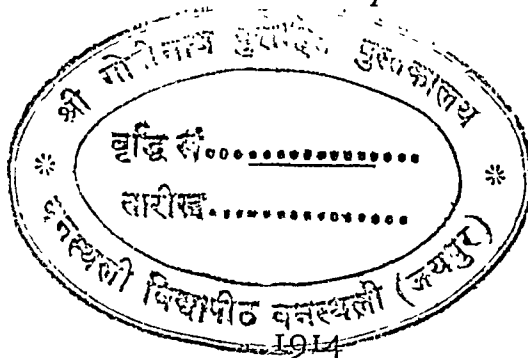
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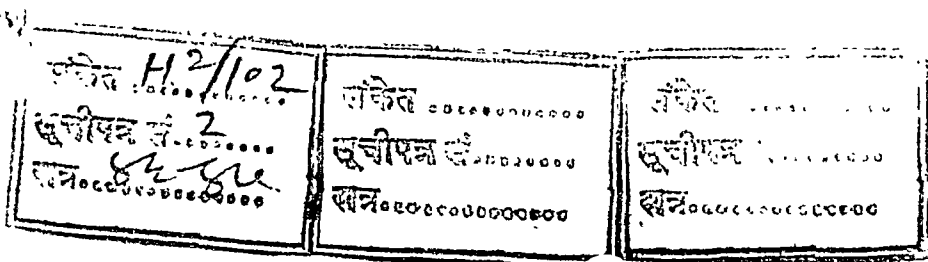
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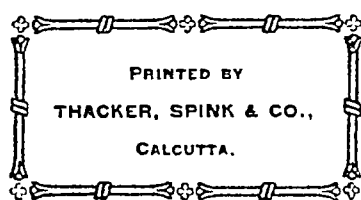
*Military Correspondent to "The Englishman"
and "The Empress."*



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FOREWORD.

THESE Notes are chiefly compiled from those I originally received from Captain W. James, Army Tutor, many years ago, and which I have kept up to date.

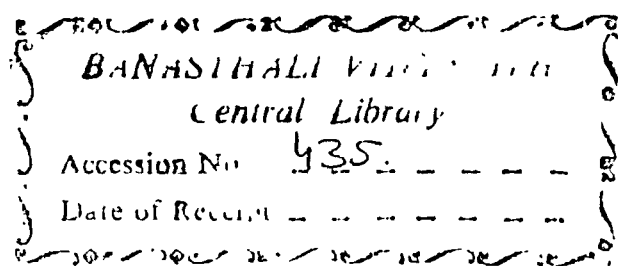
I have also embodied some of the articles I have contributed to *The Englishman*, Calcutta.

My best acknowledgments and thanks to both.

The Notes are published in the hope that they will be found useful to many to better follow the Great War now being waged.

‘FIELD OFFICER.’

CALCUTTA :
26th August, 1914.



I. FRANCE.

FRANCE is bounded on the North by Belgium and the English Channel ; on the South by the Pyrenees and the Mediterranean ; on the East by Italy, Switzerland and Germany. With the exception of the Franco-Belgian frontier and that of Lorraine, the boundaries are natural (*i.e.*, not conventional). On the East the frontier follows the crest of the Alps as far as the Rhone, the Jura Mountains as far as the Gap of Belfort and afterwards the Vosges as far as Mount Donon (west of Strasburg). From this point to some 10 miles north of Dunkirk the boundary is conventional, and excepting the portion from Mount Donon to Longwy (120 miles due W. of Mannheim on the Rhine) remains as before the war of 1870.

COAST-LINE.

The coast from Dunkirk to mouth of the Somme presents a succession of sandy downs from which projects Griz Nez opposite Dover. From the Somme to the Seine we have cliffs of chalk, and the harbours of Dieppe and Havre, requiring persistent dredging. The coast-line runs west from the Seine to the square-shaped peninsula on the north side of which lies the strongly-fortified naval port of Cherbourg. From Cape la Hague a low shelving shore, interrupted by cliffs of slate and granite, runs south to the sandy Bay of Cancale. The coast then resumes its westerly direction to form the wild and rock-bound peninsula of Brittany. The very important naval port of Brest lies in a sheltered indentation of this western peninsula. From this point the coast, gradually declining and becoming sandy, recedes E.S.E. towards the Gironde estuary. The important harbours to this point are L'Orient (naval),

St. Nazaire (commercial, at the mouth of the Loire), La Rochelle, and Rochefort (great naval and strongly-fortified military station). From the estuary (commercial port) to the foot of the Pyrenees the coast is a remarkably unbroken line of sandy downs, with no important harbour.

The Gulf of Lyons is bold and rocky, near the Pyrenees, but soon drops to a sandy beach, without a good harbour, except the artificial naval port of Cette. Beyond the mouth of the Rhone it rises in bold cliffs, and has two very important harbours, Marseilles (commercial), and Toulon (naval). Towards the Italian frontier the coast-line is flanked by precipitous Alpine slopes, and passes the small ports of Frejus, Cannes, Antibes, Nice, Monaco and Mentone. French maritime territory is divided into five "arrondissements" or districts, each commanded by a naval prefect, and corresponding to the five great military and naval ports of Cherbourg, Brest, L'Orient, Rochefort and Toulon.

The commercial seaports (in order of importance) are Marseilles, Havre, Bordeaux, Dunkirk, St. Nazaire, Cette, Boulogne, Calais and Dieppe).

CHIEF FRENCH COALING STATIONS:

Bizerta (Tunis), Algiers, Philippville (Algeria), Sfax (Tunis), St. Louis (Mth. Senegal R.), Dakar (Cape Verde), Jibutil, Nossi Be (N. W. Madagascar), Diego Suarez (Madagascar), Saigon (Annam), Tourane (Annam), Haifong (Tonkin), Noumea (New Caledonia), Martinique (West Indies).

The development of French naval power is hampered by the interposition of Spain between her Atlantic and Mediterranean coast-lines, and it has been proposed to construct a great ship canal from Bordeaux to Cette to remedy this inconvenience.

MOUNTAIN SYSTEM :

The most important range in the interior of France is that of the Cevennes. With their continuations the Cote d'Or, Plateau of Langres and the Faucillies (the connecting link between the Plateau of Langres and the Vosges) they form the great watershed between the Atlantic and Mediterranean. Their general direction is from S.W. to N.E., skirting the Rhone valley on which side their escarpment is very steep.

Auvergne Mountains extend to the N. N. W. for about 120 miles from the central point of the Cevennes range. They abound in extinct volcanoes and in Puy de Sancy attain a height of 6,000 feet. This range surmounts the Great Central Plateau of France lying between the Cevennes on south-east, the Charente River, and a line from Bourges to Nevers in the north. This plateau is about the size of Ireland, rises to a height of 3,000 feet (and is therefore higher than most of the summits in England) and is separated from the Alps by the broad and deep valley of the lower Rhone. The whole slopes towards the W. and N. W., gradually melting into the valleys and plains of the lower Garonne, Loire and Seine. If the level of the sea rose 600 feet, these plains would be submerged; the coast-line of the Atlantic would run from the Bay of Biscay towards Belgium, leaving the western Highlands of Brittany and Normandy standing out as islands; and the Rhone valley would become a long and deep gulf, bordered on the W. by the steep heights of the Cevennes. The Limousin Mountains run due west from the northern end of the Auvergne towards the Loire and Garonne basins. From the plateau of Langres, low ranges of hills, called the Argonnes and the Ardennes, run in a semi-circular direction to the N. W., between the Meuse and Seine basins.

The Vosges run parallel to, and about 20 miles W. of the Rhine from Belfort to Mainz. Since 1870 the principal block, from Ballon d'Alsace (4,000 feet) about 12 miles north of Belfort, to Mount Donon (west of Strasburg) has formed the boundary of France and Germany. Fine forests on lower slopes, open pasturages above. Steep fall to the Rhine, gradual slope to west.

CHIEF ROUTES THROUGH THE VOSGES:

- (1) Mulhausen to Epinal.
- (2) Colmar to St. Die.
- (3) Strasburg to Raon l'Etape.
- (4) The Gap of Saverne, through which runs the highway from Strasburg to Nancy, the Paris-Strasburg railway, and the Rhine-Marne Canal, is entirely German.

North of Saverne a line connects Hagenau and Sarreguemines, and is defended by the fortress of Bitche.

Jura Mountains run from the south of the Rhine (near Schaffhausen) to the west of the Lake Geneva. They consist of parallel and forest-clothed ranges, and are crossed by several good roads and railways. Between the Jura and the South Vosges lies a depression, called the **Gap of Belfort**, part of which is French. It is utilised by the Canal connecting the Saone and Rhine, and by the railway from Paris to Basle. On the French side, blocking the pass, lie the "pentagonal" fortresses of Epinal, Langres, Belfort, Dijon and Besancon.

Note.—The object of this huge arrangement of fortresses is to afford a strong and secure position which Germany cannot pass by and go direct to Paris. Taught by the 1870 War, the French have learned that to be in a favourable position to stop the German advance they must base themselves on the Southern Country, and not on Paris.

The Alps, separating France from Italy, are known as Maritime Cottian, Graian and Pennine. Since the annexation of Savoy in 1860, the Alps of Savoy, as well as a portion of the main chain including the peak and northern slope of Mont Blanc, belong to France. On the W., the main range throws off numerous spurs towards the Rhone Valley and the slope on this side is more gradual than on that overlooking the Po basin.

The Frontier, leaving the coast to the E. of Mentone, follows the crest of the Alps, up to a point midway between Mont Blanc and the great St. Bernard, where it turns N. W. to the lake of Geneva, following 10 miles W. of, and parallel to, the Rhine, from Martigny to the lake.

THE CHIEF PASSES FROM FRANCE TO ITALY:

- (1) The Col de Tende, from Nice to Cuneo (Cuni).
- (2) The Col de Genevre, from Briançon to Susa.
- (3) The Mt. Cenis (pass and tunnel) to Turin.
- (4) The Little St. Bernard, S. of Mt. Blanc.

The Pyrenees extend for 230 miles from the corner of the Bay of Biscay to the Mediterranean, with a breadth varying from 12 to 30 miles. The range rises gradually from each coast to the culminating peak, Mt. Maladetta (11,400 ft.) and the southern slope is much steeper than the northern. The range is divided into:

- (1) The Western Pyrenees, from the coast to Mt. Perdu;
- (2) The Central, from Mt. Perdu to the Col de la Perche;
- (3) The Eastern, from the Col de la Perche to the Mediterranean.

The Central Pyrenees consist of two parallel chains of the wildest character, with the highest peaks and most imposing mountain masses of the entire system. On each side spurs strike away at right angles enclosing deep and dark valleys frequently ending in wide "cirques." There are no passes practicable for troops in these mountains.

The Western Pyrenees are lower and more practicable than the Central or Eastern, presenting more numerous depressions, some of which are followed by the important routes. They rise gradually from near the sea, until at Mt. Perdu, they attain a height of 11,000 feet.

Some 40 miles from the coast, the Col de Roncevaux separates the Pyrenees proper from a series of much lower hills, falling gradually towards the Bay of Biscay.

The Eastern Pyrenees are built up of two parallel chains running in a N. E. direction, the S. del Cadi (in Spain, S. of Col de la Perche) and the Monts Alberes, along which the frontier runs to the coast. This system is between 6,000 and 7,000 feet high, decreasing gradually towards the Mediterranean. Chief Passes :—

- (1) Col de Roncevaux (due S. of Bayonne) from St. Jean-Pied-de-port on the Nive, to Pampeluna, followed in the retreat of 1813.
- (2) Col de Canfranc, an old Roman road from Oleron to Saragossa *viâ* Jaca.
- (3) Col de la Perche, between the Tet and Segre valleys, from Perpignan to Lerida and Saragossa.

N.B.—The only two railways entering Spain from France are along the coast, at each end of the range.

The frontier between France and Spain leaves the coast at Fuenterrabia (Spain), follows the Bidasoa River for a few miles, then coincides generally with the line of highest summits in the entire chain of the Pyrenees, the principal exception being that at Maladetta; the frontier strikes N., so as to include within the boundaries of Spain the Valley of Aran. To the E. of Andorra (a small semi-independent republic) it crosses the Col de la Perche on to the Monts Alberes, which it follows to the sea.

The French fortresses at the ends of the Pyrenees are Bayonne and Perpignan.

RIVER SYSTEM:

France has four main river slopes :

- (1) Into the North Sea, which receives the waters of the Moselle, Meuse and Schelde (or Escaut);
- (2) Into English Channel, which receives the Somme and Seine;
- (3) Into Bay of Biscay, which receives the Loire, Charente, Dordogne, Garonne and Adour;
- (4) Into Mediterranean, which receives the Rhone.

COURSES OF THE CHIEF RIVERS:

- (i) **The Moselle** rises in an angle formed by the South Vosges and the Faucilles. It passes Epinal, Toul, Metz, Thionville (all fortresses, the first two in France and the last two in Germany), divides Luxemburg from Rhenish Prussia, and after a tortuous course through a very broken and difficult forest country, joins the Rhine at Coblenz.

Tributaries :

R. B. Meurthe, on which are St. Die, Luneville and Nancy :

Seille, which joins at Metz.

Saar or Sarre, now wholly German joining at Konz.

These rivers represent very important lines of defence.

- (ii) **Meuse**, rises in Plateau of Langres. Up to the Belgian frontier it flows in a narrow valley, S. to N., between the Argonnes and Meuse hills.

It passes Verdun (entrenched camp), Sedan, Mezieres (fortress), enters Belgium and passes Namur (where it is joined by the Sambre), Liege, enters Holland close to Maestricht, turns to the west and joins the Waal and enters the sea by common mouths with the Rhine.

- (iii) **Schelde**, passes fortresses of Cambrai, Valenciennes, enters Belgium and passes Ghent and Antwerp (strongly fortified). Below Antwerp the river flows between dykes, where the passage is defended by forts.

- (iv) **Seine**, rises in Plateau of Langers. Course generally N.-W. except between junction of Aube and Yonne. Tortuous throughout.

Chief towns :—Troyes, Paris, Rouen and Havre.

Tributaries :—Aube, Marne, Aisne, Oise (on R.).
Yonne (on L.)

- (v) **Loire**, rises in Cevennes, flows N. W. to Orleans (75 S. W. Paris), then rather to the S. of due W. into Bay of Biscay.

Length, 550 miles. Navigable for 450 miles.

Towns :—Nevers, Orleans, Blois, Tours and Nantes:

Tributaries :—L. B. Allier, Cher, Vienne.

- (vi) **Garonne**, rises in Pyrenees ; flows N. E. to Toulouse, then N. W. to estuary of Gironde. Bordeaux on estuary.

Tributaries :—Tarn, Lot and Dordogne (all on R. B.)

- (vii) **Rhone**, rises in Mont St. Gothard, flows S. W. into and out of Lake Geneva, to Lyon, then due S. to Mediterranean.

Towns :—Martigny, Geneva, Lyon, Avignon.

Tributaries :—R. B. the Saone, joining at Lyon from the Vosges.

This has a tributary, the Doubs, running through the Jura Mountains. On it is the fortress of Besancon.

Tributaries :—L. B. the Durance, on which is fortress of Briancon.

DEFENSIVE ORGANIZATION OF THE N. AND N. E.

The basins of the Schelde and Seine, separated by low hills and crossed by excellent roads, present few natural obstacles. The frontier crossed by two large rivers, the Schelde and Meuse, with their respective tributaries, the Lys and Sambre, is entirely conventional, and is fortified in numerous places.

CHIEF FORTRESSES.

On the coast, Dunkirk, Calais and Boulogne.

Between the Lys and Schelde, Lille ; and on the Schelde, Valenciennes and Cambrai. On the Meuse, Mezieres.

North of Verdun to Sedan the French frontier is without defence except Mezieres, but further back stand the system of northern fortresses of Rheims and Laon, with Paris in the second line.

The railway from Sedan passes close to Longwy, there being a detraining station at la Ville Basse. Mexy is situated on high ground and the river Chiers is an admirable watering place for horses.

Between the northern frontier and the lower Seine the only serious obstacle is the River Somme. In its lower courses it traverses a marshy and difficult country. On it are the fortresses of Peronne and Amiens.

On the N. E., France has lost the natural obstacles of the Rhine and the Vosges, but there remain to her the very important defensive lines of the Rivers Meurthe, Moselle and Meuse.

The Meurthe is defended by St. Die, Luneville, Nancy.

The Moselle by Epinal, which has become the centre of the Vosges defences, and by Toul, with its girdle of new fortresses.

The Meuse, by Langres, a vast entrenched camp, Verdun and Mezieres.

S. of the Vosges is Belfort, very considerably strengthened since the '70 war, which guards the depression known by its name, between the Vosges and the Jura.

RAILWAYS.

All the great French lines radiate from Paris. The chief are :—

- (1) The Northern Railway connects Paris with Amiens and Calais (and so with England); also with Lille and Valenciennes (fortresses) and with Brussels.

- (2) The Western Railway, Paris to Brest *viâ* Rennes also to Rouen and Havre and to Cherbourg.
- (3) The Eastern Railway, Chalons, Nancy, Strasburg, hence *viâ* Ulm, Munich, Linz, Vienna, Buda-Pesth, Belgrade, Sophia, Adrianople to Constantinople.

A branch at Chalons, *viâ* Chaumont, to Belfort and Basle, hence by Lucerne, and through St. Gothard tunnel to Milan.

- (4) The Paris, Lyon and Mediterranean Railway, Paris *viâ* Dijon, Macon, Lyon to Marseilles and Toulon (and along the Riviera coast past Ventimiglia (Italian frontier) to Genoa. Two branches lead to Switzerland : (a) *Viâ* Dijon and Pontarlier to Berne. (b) *Viâ* Macon to Geneva.

The shortest route to Italy (for Brindisi) is *viâ* Macon, Modane, and the Mont Cenis tunnel to Turin.

- (5) The Paris-Orleans and Southern Railway *viâ* Orleans, Bordeaux to Bayonne, and by Toulouse to Perpignan, connecting with the Spanish Railways at the two ends of the Pyrenees.

SUMMARY OF PRECEDING HINTS FOR SKETCH MAP.

- (i) **Dunkirk** to Port Vendres, 600 miles, a very slight inclination to due N. and S.
- (ii) **Paris** is 150 miles due S. of Dunkirk.
- (iii) **Port Vendres** to Aude River, 50 miles.
- (iv) **Bayonne**, 250 miles west, and Toulon, 150 miles east of Aude mouth.

- (v) **Arcs** of 250 plus 150 miles from Bayonne and Dunkirk cut at Ushant Island.
 - (vi) **Arcs** of 250 miles from Ushant and Paris give Sevre River mouth in Bay of Biscay.
 - (vii) 250 miles due N. of Sevre gives Barfleur.
 „ „ E. of Paris „ Strasburg.
 - (viii) An equilateral on Paris-Strasburg gives Lyon.
 - (ix) **Orleans** lies 75 miles S. S.-W. of Paris, and Basle lies 75 miles S. S.-W. of Strasburg.
-

II. GERMANY.

CONFIGURATION.

TWO distinct physical formations.

- (1) High tableland in centre and south, interspersed with numerous ranges and groups of mountains.
- (2) Vast sandy plains in N. from Russia to Holland, varied by terrace-like elevations from (1) Vistula to Mecklenburg near coast, about 500 feet, and (2) from Silesia to Hanover (500 to 700 feet). Parts of this plain are moderately fertile and admit of cultivation, but swamps, lakes, and marshlands abound, especially in the N. E.

MOUNTAIN RANGES.

Taking the Fichtel Gebirge, in the N.-E. of Bavaria as starting point, the mountain ranges radiate in four directions :

- (1) The **Erz-Gebirge** to the N.-E., continued into the **Riesen-Gebirge** and **Sudetic Mts.**
- (2) The **Bohmer-Wald** (4,000-5,000 feet) to the S. E.
The above ranges divide Bohemia (Austria) from Bavaria, Saxony, and Silesia (Germany).
- (3) The **Franconian and Swabian Jura** to the S. W. These form the N. watershed of the Danube and the latter approaches the Swiss Jura between Basle and L. Constance.
- (4) **The Thuringian Forest** to the N.-W., gradually merging in the northern plain.

From the S. W. corner of Germany, the **Vosges Mountains** (5,000 ft.) lie parallel to the Rhine, and form the frontier of France up to Mt. Donon, opposite to Strasburg.

The Black Forest lies E. of the Rhine, and between the two ranges the Rhine flows from Basle to Mannheim.

The Alps forming the northern wall (and boundary) of the Tyrol lie to the E. of L. Constance.

The Harz Mountains (3,600 feet) stretch across Central Germany, parallel to the Thuringian Forest, and some distance to the N.

The Teutoburger Wald, continuation of Thuringian Forest, a sandstone ridge between the Ems and the Weser.

The Eifel, volcanic and difficult highlands, between the R. Moselle and the Ardennes.

COAST-LINE.

The North Sea coast of Germany, where are the outfalls of the Ems, Weser and Elbe, are low-lying, like that of Holland, and indented by numerous bays and large estuaries, but the latter are shallow and generally obstructed by sand banks. The coast does not, therefore, offer many favourable points for landing forces. Germany has however thought fit to stud the coast with defensive works of considerable importance. Besides the large naval fortifications of Wilhelmshaven, the coast-line is fortified by numerous batteries, and the river channels can be speedily blocked by booms and torpedoes. The Baltic differs from the North Sea in being almost tideless, and comparatively free from rough seas, but the coast is low and sandy, and offers few points of debarkation. The large bays are bordered by long tongues of land, cutting off shallow lagoons called

“haffs.” Rivers are Niemen, Pregel, Vistula and Oder. The chief naval ports on the Baltic are Kiel and Danzig. There are also large dockyards at Bremerhaven, Cuxhaven, Swinemunde, and Pillau.

The German coast is difficult of access, and admirably fortified so that the whole fleet can be used for offence. By means of the Kiel Canal, the North Sea and Baltic Squadrons can act either separately or in conjunction. This mitigates the disadvantage under which Germany labours by having her coast-lines broken by the interposition of Denmark.

COMMERCIAL PORTS :

Bremerhaven, Bremen, and Hamburg (on North Sea) ;
Lubeck, Stettin, Danzig, and Memel (on the Baltic).

River System :

Three drainage basins :

- (1) Niemen, Pregel, Vistula, and Oder, to Baltic.
- (2) Elbe, Weser, Ems, and Rhine, to North Sea.
- (3) Danube, to Black Sea.

- (1) **Vistula** rises on the northern slope of the Carpathians in Austria. It forms the boundary first between Austria and German Silesia, and then up to junction of the San, between Austria and Poland. Direction N. E. to River San, N. to River Bug, N. W. to Bromberg, then due N. (or roughly, an 8 with the conventional boundary of Russia). It passes Cracaw (in Austria), Ivangorod (fortress), Warsaw, Novo-Georgiewski (junction of Bug), both strong fortresses, Thorn, very strongly fortified, convergence of five very important railways, Bromberg (canal to Oder *via* river Netze), Graudenz

(bridge strongly defended). Midway between Graudenz and sea, the Vistula splits into two branches. The left passes Dirschau (railway Danzig to Konigsberg crosses bridge strongly defended), and, near mouth, Danzig a first class fortress, protected by detached forts ; and also an important naval arsenal. The eastern branch takes the name Nogat, and flows into the Frisches-haff, a large but shallow lagoon to which there is access only at the fortified harbour of Pillau.

The Vistula is navigable up to Warsaw, and below this point is nowhere fordable. In its upper courses it traverses slightly undulating plains ; at the confluence of the River San it passes into a region quite level, marshy, ill-cultivated and scantily peopled, across which communication is difficult. The delta is fertile. The course is variable owing to its low banks, and in winter it freezes over entirely. Terrible floods occur when the thaw sets in.

Chief tributaries : R. B. San, passing the strong entrenched camp of Przemysl in Austria.

Bug, traversing marshy plains. On it is Brest-Litowski, a great camp, opposed to Przemysl.

- (2) **The Oder** rises in the Carpathians in Austria, enters Germany, and flows N. W. and N. to the Stettiner-haff. It passes Breslau, Kustrin, where the Warta joins on R. (an immense entrenched camp here), and Stettin a port, about 40 miles from the sea..

Tributary: R. B. Warta, on which is fortress of Posen. This river has a tributary, the Netze.

The Oder flows through a flat, marshy country, with great forests in the South, and moors, heaths and lakes in N. Not very fertile, but good pasturage.

- (3) **The Elbe** rises in the Riesengebirge in Bohemia, passes N. into Kingdom of Saxony by a defile between the Erzgebirge and the Riesengebirge, defended by fortress of Konigstein (Germany). On leaving the defile it runs N.W. to North Sea. It passes Dresden (capital of Saxony), Torgau (fortress), Magdeburg (most important military centre and first-class fortress) and on the estuary, Hamburg, (R. B., great commercial port), and Stade.

Tributaries : R. B. Havel (at Spandau, fortress few miles west of Berlin, the Spree joins).

L. B. (1) Moldau, Prague (fortified strongly) on it.

- (2) Saale, joining above Magdeburg and receiving joint streams of Elster and Pleiss on R.

The upper basin of the Elbe is a quadrilateral plateau enclosed by Bohmer-Wald, Erzgebirge, Riesengebirge and Moravian Mountains. It has immense forests, few and bad roads, is badly cultivated, but its forests, mountains and rivers render it easily defensible. The lower basin has no enclosing heights, except on the south. The country consists almost entirely of plains and sands, with forests and small lakes. It is opened up by numerous roads, and the level nature of the country has allowed the construction of many canals.

Specially important are the routes connecting the upper Elbe with the rivers Weser and Main. These run (1) Dresden, Leipzig, Lutzen, Weimar, Erfurt, Gotha, Eisenach, Fulda, and

along the Kinzig Valley to Hanau and Frankfort-on-Main; (2) Dresden, Chemnitz, Hof, Baireuth, Bamberg, Wurzburg, Hanau and Frankfort.

- (4) **The Weser** is formed by the union at Munden of the Fulda and the Werra. It is very tortuous, and of general northerly direction. On it is Minden, where the Weser leaves the mountains by a defile called the "Gate of Hanover". The lower Weser traverses a region of heaths and morasses a sandy and barren district, except in the vicinity of the river.
- (5) **The Ems** is not important from a military point of view. It rises on the Tetoburger-Wald, flows N.W., the N. to Dollart Zee, near the border of Holland.
- (6) **The Rhine** rises in St. Gothard (Switzerland), 7,600 feet above sea-level. Flows E. N. E. to Chur (1,956 feet), five miles above which town it is joined from the south by the other chief headstream the Hinter Rhine, which rises in Vogelsberg, and traverses the terrific gorge of Via Mala. From Chur the general course is north into lake Constance (1,290 feet) separating in part Switzerland from Vorarlberg. Issuing from the lake at Stein, it flows very rapidly W. past Schafthausen to Basle (816 feet), having Jura Mountains and Black Forest on L. and R. respectively. At Basle the regular navigation of the Rhine begins. Thence course generally N.N.E. past Brisach (Old) on R. B. Strasburg (L.B. on River Ill), now a vast entrenched camp guarding the Gap of Saverne through the Vosges and Kehl, opposite to Strasburg at junction of River Kinzig, a most important approach

to the Upper Danube. The Rhine flows close to Rastadt, a fortress blocking all roads to the hollow of Pforzheim (between Carsruhe and Stuttgart) and then passes Speyer, Mannheim (junction of Necker on the right), Worms and Mainz. (1) Here joins the Main on R. the approaches to the valley being commanded by an extensive system of detached forts round Mainz. The Taunus range turns the Rhine at Mainz to the west to Bingen. The course is now N.N.W. past Coblenz at junction of Moselle (L), an extremely strong fortress commanding the direct roads from Metz and Treves to Berlin, with citadel of Ehrenbreitstein on the opposite bank, Bonn, Cologne an old and strong fortress, Dusseldorf, and Wesel at junction of Lippe (R.B.), an important position surrounded by field works and forts (now being largely increased) to the border of Holland. Between Bingen and Cologne hills of great steepness, often covered with vineyards and dotted with ruined castles, line the banks. On the west the spurs of the Hardt Mountains, the Hunsrück, and lower down the volcanic plateau of the Eifel, approach the river, and are separated by its bed from the numerous irregular chains of Central Germany, which are connected further east by the Thuringer Wald, &c., with the Carpathian system.

Tributaries : R.B. Kinzig, joins at Kehl. Flows along road from Strasburg to the Upper Danube.

Necker rises in Black Forest, and joins at Mannheim. With its tributaries, it opens out valuable approaches to Upper Danube.

Main, of great strategic importance as it forms a direct road from the middle Rhine to the Elbe, avoiding the numerous rivers which flow into the North Sea and traverse the eastern region of Germany.

L.B. Ill, rises in Jura and follows parallel to Rhine, entering two miles below Strasburg.

Moselle, rises in South Vosges, passes fortresses of Epinal, Toul (France), Metz, and Thionville (Germany), and after a very tortuous course joins at Coblenz. Its tributaries on R.B. the Meurthe, Seille, and the Sarre, present important lines of defence, the latter two for Germany, the former, with the Moselle, for France.

Meuse is not in Germany. (See notes on France.)

(For trib. the Aar, see Switzerland.)

For sketch of the course of the Rhine, use as unit a distance of 75 miles, viz.:—

(1) Basle to Constance due W. and E.

(2) Constance to St. Gothard, due S.

(Lake Constance is about $\frac{1}{2}$ a unit in length and trends to the S.E.)

(3) Basle to Strasburg, slightly to E. of due N.

(4) Strasburg to Mannheim (equidistant from Basle and Constance).

(5) Mannheim to Coblenz. N.N.W.

N.B.—Coblenz must lie due N. of Basle. Bend in river midway at Mainz.

(6) Coblenz to Dusseldorf, continuation of (5).

(7) Dusseldorf to Arnheim (just in Holland), same direction as (5) or (6) but turning due W. shortly before reaching Arnheim.

(8) Arnheim due W. to the North Sea.

From this point to the Helder, a fortress at entrance to Zuyder Zee is also a unit, and the direction of this stretch of coast is about parallel to (4).

These are also useful distances :

- (1) Strasburg to Paris $3\frac{1}{3}$ units, slightly N. of due W.
- (2) Strasburg to Toul, 1 unit. (Nancy on R. Meurthe about 10 m. E. of Toul).
- (3) Metz lies $\frac{1}{2}$ unit due N. of Nancy.
- (4) Longwy, a French fortress, whence the 1871 rectification of frontier began, must lie due S. of Arnheim and due W. of Mannheim.
- (5) Mainz to the Fichtel Gebirge is the same distance as Mainz to Basle and 75 m. S. of the Fichtel gives Ratisbon, on the Danube.

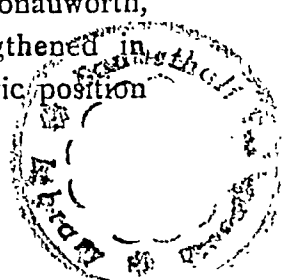
The Danube.

Upper basin, source to Passau.

The Danube has three sources issuing from the Black Forest and uniting at Donaueschingen, the convergent point of important routes from Firburg, Strasburg, Rastadt and Stuttgart. It flows N.E. in a very narrow valley past Tuttlingen, where it is crossed by the Stuttgart-Schaffhausen road, to Ulm, where it leaves the defile, becomes navigable, and receives the Iller on the right.

(Ulm, the fortress-key of the Upper Danube, is covered by a great entrenched camp. Here converge important roads from the valleys of the Neckar, Main and Iller.)

Below Ulm the Danube widens, passes Donauworth, Ingolstadt, an old fortified town considerably strengthened in recent years, and Ratisbon, a very important strategic position



midway between Strasburg and Vienna (205 miles each way). Many roads from the Main and the Elbe debouch on the Danube at this town. The river now turns S.E. (a direction which continues generally to near Buda-Pesth), receives the Isar on the R., and at Passau the Inn (R). Here the Danube leaves Germany and enters Austria.

Tributaries :

- R.B. (1) **The Iller**, which joins at Ulm.
- (2) **The Lech**, which enters Bavaria from the Tyrol by a defile defended by fortress of Fussen, and passes Augsburg, an important arsenal.
- (3) **The Isar**, which rises in the Tyrolese Alps, N. of Innsbruck, and passes Munich (capital of Bavaria), and the centre of all roads on the right bank of the Danube.
- (4) **The Inn**, which rises in Switzerland, flows N.E. past Innsbruck (capital of Tyrol) and through a defile guarded by fortress of Kufstein, where it enters Bavaria. It then passes Rosenheim (railway from Munich to Salzburg crosses), receives the Salza on the right, and forms the frontier between Germany and Austria up to its junction with the Danube at Passau.

The Inn communicates with—

- (1) **The Isar**, by Scharnitz Pass, N.-E. of Innsbruck, direct road to Munich.
- (2) **The Rhine**, by rail and road from Landeck to Feldkirch ; and

(3) **The Adige**, by Brenner Pass (across the Rhætian Alps, S. of Innsbruck).

These streams, the Iller, Lech, Isar and Inn form military lines of the first importance.

L. B. the tributaries of the Upper Danube on the left bank are not very important. The chief is the Altmuhi, which communicates by Ludwig's Canal with the Rednitz, a tributary of the Main.

DEFENSIVE ORGANIZATION OF GERMANY.

For reasons of economy, Germany has not since the war of 1870 thought fit to multiply her defensive positions, more especially her great entrenched camps : she has sustained from the French system of "forts d'arret" and having nothing to fear from the S., she has directed her attention more particularly towards her neighbours on the E. and W. On the French side Germany is protected by important physical obstacles, the Vosges, and the lines of the Moselle, Seille, Sarre and Rhine. The last-named, from Basle to Wesel, constitutes a barrier very difficult to break, supported by the neutralities of Switzerland in the S., and Belgium and Holland in the N. On the Rhine her chief defensive points are :—

Rastadt, in the plain of Baden, blocking all roads to the gap of Pforzheim ;

Germersheim (L. B.) covering the same routes as Rastadt ; Mainz commanding the Main, and the convergent point of many roads and railways ; strongly defended ;

Coblentz (L. B.) and the citadel of Ehrenbrietstein (R. B.) on the direct route from Metz and Treves to Berlin

Cologne (L) a huge entrenched camp ;

Wesel, very extensively fortified.

In advance of the Rhine, Germany has retained Metz and Thionville, on the Moselle, and added greatly to their defensive works to cover the network of railways ; Sarrelouis, the central point of the Sarre, and Bitche, blocking the defiles of the N. Vosges. Alsace is protected by Strasburg, now a vast entrenched camp, guarding the gaps of Saverne and Belfort.

In rear of the Rhine, Prussia has the Elbe as her second line of defence on the W. Magdeburg, a strong fortress, with 13 detached forts, is the centre of this line, and bars approach from Cologne upon Berlin. It is supported by Torgau in the S. (Dresden is not permanently fortified.) The centre is supported by Spandau (great arsenal), a few miles W. of Berlin.

On the South from Basle to Lindau, Germany has Switzerland as her neighbour. From Lindau, to the sources of the Vistula (about 1,200 miles) she touches Austria. In the Danube basin, Ulm, Ingolstadt and Passau cover the frontier. Of these the most important is Ingolstadt, which, since 1875, has been engirdled by 12 detached forts. It is the chief arsenal and headquarters of the Bavarian army.

In Saxony, Konigstein (N. end of Schandau defile) and Torgau guard the approaches from Bohemia.

Breslau, though an important strategic position, has not been fortified, being considered outside the sphere of likely operations on this frontier. By reason of the direction taken by the boundary line of Silesia and Poland, the Russians would have their right flank too much exposed to risk an attack upon Silesia, without first reducing the Baltic positions of Germany ; hence it is in respect of these positions that the Germans have directed their defensive preparations.

On the E., the boundary is almost entirely conventional and therefore weak. The frontier sweeps round in a semi-circle, with Konisberg as a centre, and a little N. of Memel as a radius, to a point due S. of and 75 miles away from the Frisches Haff. It then follows the R. Drewintz to its junction with the Vistula, and proceeds south-westerly in a conventional form to the junction of the Warta and the Prosna. It follows this river for about 35 miles and continues in a south-easterly direction, occasionally along small streams, but mainly on a conventional line, until it meets the Vistula in the S.-E. of Silesia.

In the N.-E. she has the strong fortresses of Konigsberg, Thorn and Danzig; in the E., Posen and Kustrin; and in the S.-E., Glogau. These places rest on the natural lines of defence of the Pregel, Lower Vistula, Netze, Warta and Oder, aided by the lakes, forests and marshes which cover the plains traversed by these waterways.

RAILWAYS:

Germany has, with the exception of the U. S. A., the largest railway system in the world, and there is scarcely a point in the empire that cannot be reached in 24 hours from Berlin.

But the railways are of more than national importance. The lines along both banks of the Rhine have formed a useful link in the communication between England and India since the St. Gothard tunnel was opened; the line from Strasburg through Ulm and Munich to Linz and Vienna is traversed by the Orient Express from Paris to Constantinople; while the line from Cologne through Berlin to Warsaw unites Paris by the town of Samara on the Volga to Siberia, and thence to Eastern Asia.

GERMAN STRATEGIC RAILWAYS.

The German strategic railways run South to Luxemburg (i) via Thionville to Metz, (ii) via Esch-Aumetz to Fontoy—while it will be noticed by reference to the Longwy map that several feeder lines run close up to the very frontier. The Esch-Fontoy line about Aumetz is only 12 miles distant from Longwy. A main road leads from Longwy to Aumetz, so that the French may possibly send a raiding party along this to damage the line. There is high ground about Tressange, four miles from the frontier. The main road to Aumetz, it will be noticed, passes between the Ottange and Erronville woods.

The Germans have, by new and little known railways, made it possible to seize in a single night the passage of the Meuse at Ruremonde, and the important junction at Gouvvy in the Ardennes.

The railway from Aix-la-Chapelle to Eupen on the Belgian frontier has recently been considerably altered, and a line has been constructed from Hermeskeil to Buzonville in Lorraine. A new line has during the last couple of years been constructed connecting Zweibrücken and Rieding, near Saarburg, *via* Wingen, another connecting St. Louis and Werenzhausen with an extension to Seppois-le-Bas : a third from Neustadt, in the Black Forest, in the direction of Basle. The railway stations at Saarburg, Mulhausen, and St. Louis have quite recently been remodelled and now have permanent military sidings and platforms.

Berlin is the greatest centre of the radiating railway lines in Central Europe, in direct touch with every capital on the Continent. Chief lines :—

- (1) Berlin to Warsaw (crossing the frontier near Alexandrov), hence to St. Petersburg and Moscow, respectively.

- (2) Berlin to Breslau, whence after crossing the frontier, S. of Silesia (a) to Vienna ; (b) due E. to Cracaw and Lemberg ; and through Russia to Odessa.
- (3) Berlin to Dresden, into Bohemia by defile of Schandau, to Prague and Vienna.
- (4) Berlin to Munich, where it connects with the Orient line to Constantinople.
- (5) Berlin to Mainz, where it joins the lines along the Rhine.
- (6) Berlin to Hanover, thence to the Hook of Holland (for England).
- (7) Berlin to Cologne, thence to Brussels and Paris.
- (8) Berlin to Hamburg, Bremen, etc.
- (9) Berlin to Stettin, joining lines to all the important towns in N. Germany.

PROBABLE ROUTES OF INVASION FROM FRANCE INTO GERMANY :—

PRACTICALLY THREE.

- (1) North of the Ardennes and Eifel, through Belgium by Aix La Chapelle (Aachen) to Cologne, then N.-E. to Minden, and E. to Hanover and Berlin.

Unless Belgium were an Ally, this would be very dangerous.

- (2) From Belfort, through the Black Forest or if Swiss neutrality were disregarded, *viâ* Schaffhausen to the Danube.

Unless Austria were neutral, this would be almost hopeless, for the invaders would be between two fires.

Through the Bavarian Palatinate, by Fulda and Eisenach to Leipzig, striking the N. end of the Thuringian Forest. This has been the route usually chosen for French operations against Northern Germany. At the same time a second army would probably threaten South Germany, advancing from Belfort, in order to prevent the concentration of the entire German forces.

III. SWITZERLAND.

SWITZERLAND is a small Federal Republic, in the centre of Europe, and, from a military point of view, a natural fortress, lying in the midst of strong military powers. It is bounded on the N. by Germany, on the E. by Austria (the Tyrol), on the S. by Italy, and on the W. by France. About two-thirds of the country are filled by high mountains (the Alps), rendering the movements of large forces most difficult, and restricting very materially the sphere of possible military operations.

From Lake Constance to Geneva, Switzerland may be considered free from the likelihood of invasion under modern conditions ; but to the west of this line, the country is a plateau, 100 miles long and from 12 to 20 miles broad, where the physical conditions present less restrictions to the movement of troops. The Jura, however, offer strong defensive lines until the neighbourhood of Basle is reached, and the R. Aar, with L. Neuchatel, is a second and parallel line. Again parallel and further E., lie a series of lakes—Zurich, Lucerene, and Thun—all draining into the Aar, and the Aar to the Rhine, midway between Basle and Constance. The line marks the limit of possible operations.

Though Switzerland has no coast-line, it occupies a fine commercial position, for it touches four of the greatest industrial countries of the Continent, and the great highways and railways linking these countries pass through it. Hence, the integrity and independence of the country have been guaranteed by the Powers. All the strategical points—as Schaffhausen—through which pass the railways and roads

which would be used by a force entering South Germany and desirous of evading the Black Forest ; and Zurich, the central defensive point against invasion from Schaffhausen or the St. Gothard, have been fortified, as also the points where the great railways cross the frontier. Of these, the chief are the Simplon and St. Gothard, leading to Italy, and the Arlberg, leading to Innsbruck (Tyrol).

Switzerland plays an important part in the theatre of war of the Rhine. In the possession of France, it would give that country the advantage of a salient frontier. In the present day, as a neutral State, it separates Italy and Germany, while it gives cover to the French along that part of their country from Basle to Geneva.

The French, if they invade South Germany, will do so between Basle and Schaffhausen, as the hills enclosing the Danube Valley are there low, and present no important obstacle ; whereas the Black Forest is hilly and wooded and not suited to the movement of modern large armies. By the same route also would the German advance be projected from Switzerland. Either would hold the Jura defensibly and both would hold the Zurich line as a support to their communications.

IV. BELGIUM & HOLLAND.

THE chief strategical consideration regarding Belgium and Holland was their neutrality. This has been most ruthlessly disregarded by Germany, as was expected.

France, England, and Russia are the best guarantee of the independence of these countries, and France most of all. Belgium would not survive the utter defeat of France, and England cannot afford to see Antwerp and Amsterdam pass into the hands of any great Power. Schleswig-Holstein, Alsace-Lorraine, and Poland are sufficient warning against trusting to treaties or forbearance for the preservation, either of independence or of peace.

It is undeniable that the crushing of France would put an end to the present balance of power, and the surest safeguard is a strong France to secure the future peace of Europe.

POSITION OF HOLLAND.

The military occupation of Holland would have a most serious influence upon the conduct and result of the present war. It is to the interest of Germany that no landing of troops takes place in Holland. A force here would menace the flank of German armies operating against France or enable other armies to operate against Germany.

It will be remembered that the German Emperor not many years ago addressed a letter to the Queen of Holland relating to the military situation in her country. In Moltke's time the Netherlands were encouraged to strengthen their national defences in view of a possible aggressive action of France against Germany through Dutch territory, and the

situation of the Low Countries, right up to the present time, had been attracting more and more attention in German military circles.

The defensive organisation is based on the use of inundation by a system of sluices, which are guarded by numerous forts.

On the Yssel, a branch of the Rhine, which leaves the stream above Arnheim, and flows north to the Zuyder Zee, the forts of Zutphen, Doesborgh, and Zwolle form the first line of defence against Germany, supported by the Vecht with Utrecht and the entrenched camp of Amsterdam.

On the Belgian side, Holland possesses an important position, Maestricht, on the Meuse. The mouths of the Meuse and Scheldt are both Dutch, as are also all the islands in the joint estuaries of these rivers and the Rhine, and all the approaches are defended by forts.

The Helder defends the passage into the Zuyder Zee, between Texel Island and the mainland.

BELGIUM'S NEUTRALITY.

Physically, Belgium is generally flat, and except in the Ardennes, presents few features of importance. It is watered by two large streams, the Scheldt and Meuse. On the former Ghent, and at the mouth, Antwerp, a strongly fortified port. The land boundaries are everywhere arbitrary.

Belgium within recent years has strengthened the defences of Liege and Namur and the fortresses along the Meuse have been fully equipped with modern war material.

At the time of the Algeciras Affair the *Independence Belge* demanded 250,000 men to guarantee Belgian neutrality and action befitting the position of the country. How well Belgium has carried out her duty is now history.

The Belgian natural line of defence is the Meuse on the line Liege-Namur-Givet.

The German advance through Luxembourg is probably against the Stenay-Sedan line on the Meuse : this will necessitate the masking of Liege-Namur.

France has her left flank protected by the defensive line Verdun-Mezieres.

STRATEGIC SITUATION IN NORTH- WESTERN EUROPE.

The security of the British Isles depends to a large extent on the military posture of affairs from the mouth of the Elbe to Ostend even more than was the case in the days of Edward III., Elizabeth, Queen Anne or the Georges. The strategy of our Isles is not to-day in the Channel but in the North Sea.

The naval and military history of Europe will now depend on what occurs in the space enclosed by lines drawn from Kiel to Stavanger in Norway and Scapa Flow in the Orkneys, thence by Dover and Antwerp to Cologne and Bremen—and so back to Kiel.

The Frisian Isles and the adjoining territory are to the Britons of to-day what they were to the Britons when the Romans left them to themselves nearly 1,500 years ago—only ten times more dangerous. The German Maritime Quadrilateral is for purposes of defence or offence far more formidable than any of the other Quadrilaterals—Italian, Turkish, Polish or Rhenish—which have so long exercised the ingenuity of military engineers and chroniclers. On the other hand, this district and the Baltic are as vital to German interests and German naval and commercial progress as were the Imperial cities of the Hanseatic League in the time of Charles V. and Gustavus Adolphus.

The connection between the independence of Holland and the security of England, as well as the strategic importance of Belgium in regard to Western Europe, have been admirably explained by Sir Edward Grey in his speech to Parliament which Reuter cabled out. Belgium and Holland demand to-day our closest attention, their international role is more striking now than it ever was, even when the most powerful monarchy of Europe employed the finest armies in the world, backed by the wealth of Mexico and Peru, to crush their rising greatness, but tried in vain. In the hands of that or any other powerful Monarchy, and used with skill adversely to our interests, they would cost us as much in one year as Napoleon cost us in five.

V. AUSTRIA-HUNGARY.

THE great Austro-Hungarian Empire is composed of a union of two States, administratively distinct, but under one Emperor, and with army, navy, diplomatic and postal services in common. The one is officially known as Austria, the other as Hungary. Geographically, the Empire is compact, but irregular in shape, and except in the N. E., the boundaries are almost wholly natural. Austria-Hungary borders on Italy, Switzerland, Germany, Russia, Roumania, Servia, and Montenegro, and has a coast-line on the Adriatic (not counting the islands) of about 1,000 miles.

CONFIGURATION.

2. Three-fourths of the Empire are mountainous or hilly, being traversed by three great **mountain systems**: (1) the *Alps*, (2) *Carpathians*, (3) *Bohemian Mountains*.

(1) **The Alps** enter the Tyrol from Switzerland and stretch across it in three chains. The loftiest is the central chain called *Rhætian*, rising to nearly 13,000 feet; a parallel range in the N. on the German frontier is known as the Tyrol-ese Alps; and a third chain in the south along the Italian frontier as the Carnic. All these ranges descend very abruptly on the south side and form short lateral valleys, but on the north side generally slope gradually by terraces. The Rhætian Alps (continued in the Noric Alps), decline in height gradually towards the E., and, in the Leitha Hills stretch to the Danube overlooking the plain of Vienna. Here they form the transition to the

(2) **Carpathians.**—The chain, extending for 900 miles rises on the L. bank of the Danube, near Pressburg, and sweeping in a wide curve first E., then S. and S.-W. through Transylvania, again meets the Danube at Orsova. Their average elevation is about 6,000 feet. Springing from the N. W. bend of the Carpathians, a line of mountains called the

(3) **Sudetic and Riesengebirge** run along the north-east side of Moravia and Bohemia. Continuous with this range, and beginning on the L. bank of the Elbe, run the Erzgebirge Mountains on the confines of Saxony, and veering to nearly S. E., the range is prolonged in the Bohmerwald, towards the Danube near Passau.

The Carnic Alps are continued to the S. E. parallel to the Adriatic, and under the names of Julian and Dinaric Alps reach to, and traverse, Montenegro. They are generally bare and rugged, and rise to about 4,000 feet.

Bosnia and Herzegovina are completely traversed by a number of parallel ridges running generally N. and S.

The greater part of Hungary forms a vast plain, drained by the Danube and the Theiss, while Bohemia in the N.-W. and Transylvania in the S. E. of the Empire, are plateaux.

RIVER SYSTEM.

With the exception of small streams flowing to the Adriatic, all the rivers have their mouths in other countries, and the chief river, the Danube, has also its source in another country.

(1) To the Baltic flow :—

Vistula, which forms the boundary of Russia up to the San (On the San, note strongly entrenched camp of Przemysl) **Oder**. } See notes on Germany.
Elbe, with tributaries Moldau and Eger.)

(2) To Adriatic flows the—

Adige, which rises in the Rhætian Alps, flows S., past Trient into Italy, then E., entering the sea not far N. of the Po. It is very rapid and navigable with difficulty to Trient. A railway to Innsbruck, *viâ* the strongly fortified Brenner Pass, runs up this valley.

(3) To Black Sea flow :—

Dniester, a very rapid river, rises in the Carpathians, and after reaching the Russian frontier, rushes muddy and turbid. through low plains to the sea near Odessa.

THE DANUBE.

Upper basin, source to Passau.—(See notes on Germany).

(Second basin, Passau to Pressburg, and third basin, Pressburg to Orova). On entering Austria, the Danube flows S. E. through a defile which is practically continuous, to *Linz*, a fortified city, and then to *Vienna*, the capital. Above *Pressburg*, the Danube receives the Morava on the L., and flowing between the Carpathians on the N., and the Leitha Hills on the S., enters Hungary. It now flows through a vast, low and marshy plain, divides into several branches, which uniting at Komorn, enclose the Great and Little Schutt Islands. At Komorn (fortified) the joint-stream is constricted by hills on each side up to Waitzen, where it turns due S. and enters the plain of Lower Hungary.

It passes *Buda-Pesth*, and the southerly direction is continued to the junction of the Drave on the R. It now turns E., passes Neusataz (where the railroad to Constantinople crosses the river), and *Belgrade*, the fortified capital of Servia at the junction of the Save (R) and at Orsova leaves Austria, passing by the defile of the Iron Gate between the Carpathians (L) and the Balkans (R).

Tributaries: (L) (1) The **The Morava** in the eastern corner of Bohemia and flows generally S. It passes *Olmütz*, a very strongly fortified position, and joins above Pressburg. A railway along this river joins Bohemia and Olmütz with Vienna and Pressburg.

(2) **Theiss** rises in the N. E. of Hungary, and after traversing the dreary marshes in endless loops, parallel to the south flowing portion of the Danube, and swollen by many tributaries, joins midway between Neusatz and Belgrade. On it is *Szegedin*, whence a railway runs through the "Iron Gate" to *Bukharest*, the capital of Roumania.

Tributaries: R. B. (1) Drave flows south-east from a valley between the Noric Alps (N) and Carnic Alps (S). On it is *Essek*, a fortress.

(2) **Save** is a parallel river to the Drave. It passes near *Leybach*, where roads converge from Trieste, Pola, and Fiume (on the Adriatic) upon Vienna. The Save joins at Belgrade, and with the Danube itself forms the N. frontier of Servia. A tributary, **the Drina**, separates Servia in the W. from Bosnia.

(3) **Morava** (Servian) is formed by two streams whose valleys constitute the chief part of the kingdom of Servia. It falls into the Danube below Semendria (fortress). On the

E. branch is *Nisch*, a fortified town on the railway to Constantinople whence branches a line down the Vardar Valley to Salonika.

COAST-LINE.

4. *The Coast-Line* is remarkably indented, and the extensive erosion by the sea has furnished Austria with several fine natural harbours. The almost continuous fringe of islands affords a safe roadstead. The chief harbours are :—

Trieste, chief commerical port of the Adriatic ;

Pola, first naval station of Austria.

Fiume, naval arsenal.

Ragusa } spacious and strongly defended harbours
Cattaro } in the south.

The contiguity of the valley of the Upper Save to the coast affords valuable communication between sea and Danube.

RAILWAYS.

5. *Chief rail routes into Austria* :—

(1) Dresden to Prague, following the Elbe through the long defile of Schandau, hence to Linz or Vienna.

(2) Ratisbon to Vienna, following the Danube past Passau and Linz.

(3) Munich to Vienna, *viâ* Linz, joining No. 2.

(4) France and Switzerland from Feldkirch on Upper Rhine to Landeck on Upper Inn, by Arlberg Tunnel, hence to Innsbruck.

(5) Italy by Adige Valley to Innsbruck, by strongly fortified Brenner Pass.

(6) Italy (Adige Valley) to Drave Valley, *viâ* Puster-Thal-Tunnel ; hence to Vienna by the Semmering Tunnel (east end of the Noric Alps). This is the direct route from Italy to Vienna.

(7) Buda-Pesth, down Danube to Neusatz, Belgrade, and Nisch. Hence (1) *viâ* Sophia and Adrianople to Constantinople, or (2) *viâ* Vardar Valley to Salonika.

(8) Szegedin to Bukharest, *viâ* the 'Iron Gate.'

(9) Vienna and Olmutz *viâ* Upper Oder and Vistula to Cracow and Warsaw.

(10) Trieste }
Pola } *viâ* the Adelsberg Pass across the Julian
Fiume } Alps to Leybach on the Save.

THE DANUBE.

Fourth basin, Orsova to Black sea.

The lower basin of the Danube consists of a vast plain between the Carpathians and the Balkans. On leaving the Iron Gate, the Danube turns S. E., receives the Timok (R) which separates Servia and Bulgaria, and becomes the boundary of Roumania and Bulgaria. It passes the fortress of *Widdin* (R) in Bulgaria, then becomes more easterly in direction, and enters a flat, swampy region exposed to disastrous floods; passes *Sistova* (R) where the Russians forced the passage of the river in 1877; *Rustchuk* and *Silistria*, both fortresses on the R. B. On the section of the river no bridge exists, and the towns on the R. B. have played important parts in the defence of the river, notably *Sistova* in 1877 and *Silistria* in 1854. Below *Silistria*, the Danube changes its direction to the N., and divides into numerous channels, which unite again at *Braila* (L). This part of its course is parallel to the coast of the Black Sea, and between the river and sea lies the low and unhealthy region called the *Dobrudsha* which Russia compelled Roumania to accept in 1878 in

exchange for Bessarabia. Near *Galatz*, a large port, the Danube receives the *Sereth* (L), resumes its E. direction, receives the *Pruth* (L), the boundary between Russia and Roumania, and itself becomes the frontier between the two countries. Midway between *Galatz* and the sea the river divides into three channels. The N. branch forms the actual frontier, and passes on its L. *Ismail* and *Kilia*, now Russian fortresses. The S. branch is now entirely Roumanian, and is not very valuable; *the middle channel*, by far the most important, was neutralised by the Treaty of Paris (1856) and placed under an international commission seated at *Galatz*.

Tributaries : L. B. A large number of streams flow from the Carpathians into the Danube; of these should be noted :—

Aluta, which issues from Hungary by the defile of *Rothen-thurm* and is followed by the railroad from *Szegedin* to *Bukharest*.

Sereth, { parallel rivers draining Moldavia and joining on
Pruth { each side of *Galatz*.

The latter forms the Russo-Roumanian frontier.

R. B. *Timok*, forms in part boundary of *Servia*.

Isker, the most important tributary rises in the *Rilo-Dagh*, a spur of the *Balkans*. Its upper valley communicates by a defile called “*Trajan Gate*” with the *Maritza Valley*, the direct road to *Constantinople*.

Vid, near which is *Plevna*.

(2) *Maritza*, the chief river entering the *Aegean*, rises near the *Isker*. It passes *Philippopolis* and *Adrianople* (on railway to *Constantinople*). A tributary, the *Tundja*, flows from the *Shipka Pass* and joins at *Adrianople*.

(3) *Vardar*, flows from the *Tchar-Dagh* to the *Aegean* near *Salonika*, and is followed by a railway from *Nisch*.

VI. RUSSIA IN EUROPE.

RUSSIA forms part of the great plain of Europe, and if we except the Valdai Plateau, between St. Petersburg and Moscow (highest point 1,328 feet), the Crimea, and Finland, the country presents either a dead level, or a gently undulating surface consisting of (1) tundras, (2) forest lands, (3) a rich fertile area, (4) steppes, and (5) marshes.

(1) The tundras are frozen plains at the mouths of the Arctic rivers.

(2) The forest region occupies a zone, roughly approximating to the latitudes of Moscow and St. Petersburg and extending from the Baltic to the Urals.

(3) Rich fertile area or "Black lands," a wide strip of dark vegetable soil, extending from Galicia to Nijni-Novgorod (S. W. to N. N.) and from Moscow to Ekaterinoslav (N. and S.)

(4) Steppes, vast and generally sterile plains, desert wastes of dust in summer, and in winter endless plains of snow, the roads in which are indicated by lines of stakes.

(5) Marshes or Swamps of Finland and W. Russia. In the wet season a succession of vast pools connects the South Dwina River and the basins of the Upper Volga and Dnieper, thus constituting an unbroken line of water from the Baltic to the Black and Caspian Seas.

Boundaries: In the N. the Arctic Ocean. In the W. the River Tronea, Baltic Sea, and from S. of Memel, an entirely conventional frontier, curving as far W. as 18 E. long. where it borders Germany, and sweeping round the

Austrian province of Galicia to Rivers Pruth and Danube which mark off Roumania. On the S. the frontiers are the Black Sea coast up to $41\frac{1}{2}^{\circ}$ N. lat. (south of Batoum), and then a line drawn irregularly across Armenia up to Mount Arrarat and along the Aras River to the Caspian. In E., the Ural Mountains (generally) and the Ural.

RIVER SYSTEM.

From S. W. to N. E. Russia is traversed by a gentle domelike watershed of insignificant elevation, running from the Carpathians to the Urals. From the low centre great sluggish streams creep across the plains to the (1) Arctic, (2) Baltic, (3) Black and Azof, (4) Caspian Seas. To Arctic flow :—

Rivers Petchora, Mezen, *N. Dwina*, Onega.

At mouth of *N. Dwina* is *Archangel*, Russia's only port on Arctic.

To Baltic flow :—

(1) The short swift *Neva* discharging the waters of Lakes Onega and Ladoga to the Gulf of Finland. Near the mouth is *St. Petersburg* and 14 miles W. lies the island-fortress of *Kronstadt*.

(2) The *S. Dwina*, rising in the Valdai Plateau. It flows S. W. then N. W. to Gulf of Riga. *Riga*, at mouth, is Russia's third port.

On it is *Dunaburg*, a strong fortress.

(3) Niemen, or Memel, Russia's first line of defence against Germany. It rises in a marsh, flows W. then N. to fortress of Kovno, then W. across German frontier and past Tilsit into Kurisches half.

To the Black and Azof Seas flow :—

(1) *Dniester*, which rises in the Carpathians and enters the Black Sea 20 miles S. W. of Odessa. On it are fortresses of Bender and Tiraspol.

(2) *Dnieper*, rises in Valdai plateau, flows S. W. past Smolensk S. to fortress of Kiev, S. E. to Ekaterinoslav, then S. W. on the right bank near mouth the fortified port of Kherson lies.

The river forms a line of great commercial and military value.

Trib : R. B. Beresina, draining a district of swamp and forest.

Pripet crosses the Pinsk Marsh W. to E.

Bug, flowing into estuary past the fortified harbour of Nikolaiev.

(3) Don rises 100 miles S. of Moscow. It flows first S. E. towards the Volga at Tsaritsin, from which river it is separated by the Sarpa Hills, a broad granitic range running N. and S. then S. W. to the sea of Azof through the Cossack country.

To the Caspian flow :—

(1) **The Volga**, the largest and mightiest river in Europe. It rises in the Valdai plateau, flows slightly S. of E. to Kasan, S. W. to Tsaritsin, then S. E. to Caspian. It is 2,400 miles long and navigable up to Jaroslav (long. 40 E.), a distance of 1,900 miles. Width at Nijni-Novgorod is 200 yards, at Kasan 1,100 and below Tsaritsin 4,500 yards. It passes Nijni-Novgorod (River Oka joins), Kasan Samara (fortress),

Saratov, Tsaritsin and Astrakan. Its banks are strongly fortified between sea and Tsaritsin.

Trib : R. B. Oka (with tributary Moskwa on which is *Moscow*).

L. B. Kama on which is the town of Perm.

(2) Ural River, forming in latter course the boundary between Europe and Asia. On it is *Orenburg*, an important military commercial and railway centre.

(3) Kur (with tributary Aras). On it is Tiflis, capital of Transcaucasia.

3. *Mountains* : Viewed as a whole Russia may be regarded as a vast quadrilateral plain, the only important mountains lying on its margin.

(i) *Caucasus* extend from Straits of Kertch to Baku on the Caspian. Mount Elburz and Mount Kasbek rise to 18,800 and 16,800 feet respectively. The only pass Darial is on the N. E. side of Kasbek and along it runs a military road (not rail) from Tiflis to Vladikavkaz.

(By this route Russian troops can be drafted to Baku, ferried across the Caspian to Krasnovodsk, then taken by rail across the Tekke-Turcoman desert to Merv, and up to Kushk Valley to the frontier of Afghanistan, 70 miles N. of Herat).

(ii) *Ural Mountains* stretch from Arctic to Orenburg. Height 5,500 feet. Railways across the Urals from Perm to Tiumen, and from Samara to Omsk, link the European to the Siberian systems.

PORTS.

Chief commercial ports are St. Petersburg, Revel, Riga, Libau (on the Baltic), *Odessa* and *Batoum* (Black Sea), Astrakan and Baku (Caspian).

Chief Naval ports: Kronstadt, Nikolaiev, Sebastopol and Libau.

CHIEF FORTRESSES.

Kronstadt, guarded by forts and batteries of the strongest description.

Sveaborg, defends the harbour of Helsingfors, N. side of Gulf of Finland.

Revel, S. side of Gulf. Good roadstead. Defended by forts on a height.

Kertch, strongly fortified, guards entrance to Sea of Azof.

Sebastopol, S. W. Crimea.

Ivangorod, *Warsaw*, and *Novo-Georgiewski*, on Vistula.

Brest-Litowski, on the Bug (tributary of Vistula).

Dunaburg, R. B. of S. Dwina. Strongly fortified. Railway from Warsaw to St. Petersburg crosses.

Kiev, and Kherson, on the R. B. of R. Dnieper.

Ismail, on the northern mouth of Danube, 42 miles E. of Galatz. Ceded in 1878.

Kars, in Russian Armenia. Ceded in 1878.

Batoum, E., end of Black Sea. Fortified in contravention of Berlin Treaty.

Bomarsund, in the Aland Isles, bombarded by British in the Crimean War.

CHIEF RAILWAYS.

Moscow is the centre of the railway system

From thence railways run

- (1) To Warsaw, *viâ* Brest-Litowski ;
- (2) To Archangel
- (3) To Nijni-Novgorod and Perm for Tiumen (Siberia) ;
- (4) To Samara, over the Urals to Omsk (the Trans-Siberian railway) to Vladivostok, also to Orenburg for Tashkent
- (5) To Vladikavkaz, for the Dariel defile
- (6) To Sebastopol ;
- (7) To Kiev and Odessa, &c.

A direct line also connects Warsaw with St. Petersburg, *viâ* Vilna and Dunaburg.

VII. SERVIA.

(Written for *The Englishman*, 29 July 1914.)

FOR operations against Servia and Montenegro there are 14 Mountain Brigades of Austrian Infantry ready for immediate service : this is not sufficient. It is estimated that a campaign in Servia, in view of its guerilla nature, necessitating extensive measures for the particular protection of the lines of communication would require 4 to 5 Army Corps—*viz.*, 240,000 to 250,000 troops : and for operations in Montenegro, if Montenegro made common cause with Servia, about 100,000.

If war becomes imminent large reinforcements will be necessary. In the case of Servia, this would be easy owing to good roads and railway communications. The force of 30,000 men already on the Drina should be sufficient, but as regards Austria reinforcements would be difficult, even if the navy assisted.

This is on the assumption that in a campaign against Servia the Austrian main body will advance from Southern Banat—while holding the line of the Drina. Against Montenegro, if she joined Servia, the scheme is to advance from near Bilex against the Central Valley of the Zeta.

STRATEGICAL PLAN OF SERVIA.

To foment an insurrection in Bosnia and Herzegovina and simultaneously advance on Serajavo and Mostar.

It is absolutely necessary that Austria should hold the Drina against Servia, therefore against this scheme the Austrians have fortified the Drina at the crossing points : Foca,

Gorazda and Vichegrad. These points are so far apart that their garrisons can hardly support each other, and north of Losnitza, the Servian bank commands the Bosnian by more than three feet, allowing of unseen approach and concentration, while the Bosnian bank is open and without cover.

In North Servia, the strategical conditions are simple. Here the Save and Danube form so mighty a barrier as to make a strategical raid upon Servia impossible. *Per contra*, the conditions are much more favourable for the assembly of large forces: the communications are excellent and many prospering villages offer facilities for quartering large numbers of men.

THE AUSTRIAN BASE.

The Austrian Base would be the lower Banat. Four railways run to this base and the Danube is another line of transportation: hence a favourable line of advance offers through the valley of the Morava. The Austrian plan, therefore, is to hold the line of the Drina, to advance up the Morava and also *viâ* Vichegrad.

Should Austria seize and hold these lines, a Servian army would be hemmed in and be forced to capitulate. Keeping the Servian forces together is the only way to avoid guerilla warfare which would ensue. The concentric Austrian lines of advance indicate clearly their intention to attempt this.

As regards Montenegro, Austria is much more favourably situated: a network of good roads now exists in Herzegovina, and a large number of fortified posts have been constructed as well as large supply depots. There are three great frontier fortresses each with a garrison of 10,000:—Bilek, Trepinje

and Cattaro. The frontier lends itself to a concentric advance, which would be made through Foca—Gazko—Bilek—Trepinje—Cattaro. The main objective of the Austrian advance would be the Zeta Valley, the centre and source of Montenegrin supplies.

Dalmatian harbours, with the exception of Cattaro, are subject to storms.

POSITION OF SERVIA.

Servia is generally a country of mountains and forests, but contains also large and fertile plains well watered by tributaries of the Save. It is traversed from South to North by a large tributary of the Danube called the Morava, and tributaries of this called the Har and Missava, on left and right banks respectively, divide the country into four parts. The North-West Section is an immense forest region, thinly peopled, very difficult, and readily defensible. Between the Morava and the Timok (tributary of the Danube) stretch great wooded and broken ranges, attaining near Alexinatz a height of 5,000 feet, and crossed by few and very bad roads. The south of Servia forms part of the plateau of Kossovo (which is the "core" of the whole peninsula. The town of Uskub is about the centre of it.)

The Rivers Save and Danube, forming the northern frontier of Servia, are navigable, and the marshlands and plains of Hungary are commanded up to Bazias by the heights on the Servian side. The only bridge is at Belgrade, where crosses the main line *viâ* Nish and Sophia to Constantinople. The river Drina, which separates Servia from Bosnia (Austria), affords by its upper valley important communication with Montenegro, and the Har gives access to Novi-Bazar, Mitrovitza and the plateau of Kossovo.

Comparison of French and German Military Strength.

	Total Number.		On Secondary Theatres.		AVAILABLE IN PRINCIPAL THEATRES.								1ST LINE.			2nd Line Reserve Landwehr 1st year.	Total Mobilised Strength.	
	Army Corps.	Divisions.	Army Corps.	Divisions.	Army Corps.	Divisions.	Cavalry Squadrons.	Infantry.		Artillery.		Active.	Reserve.	Total.				
								Battns.	Cos.	Machine Guns.	Battns.				Guns.			
1911	Germany ..	23	48	3	7	20	41	430	536	2,144	582	511	3,084	600,000	650,000	1,250,000	1,260,000	2,510,000
	France ..	21	46	2	4	19	42	322	554	2,250	912	624	2,454	552,000	628,000	1,180,000	1,580,000	2,760,000
	Difference for France.	-2	-2	-1	-3	-1	+1	-98	+18	+106	+330	+110	-630					
To-day	Germany ..	25	50	3	6	22	44	436	595	2,380	1,190	552	3,264	658,000	742,000	1,400,000	1,358,000	2,758,000
	France ..	21	50	2	4	19	46	340	571	2,308	1,142	624	2,454	546,000	590,000	1,135,000	1,475,000	2,611,000
	Difference for France.	-4	..	-1	-2	-3	+2	-96	-24	-72	-48	72	-810	..	132,000	..	153,000	147,000
British Expeditionary Force.		..	..	..	..	..	..	42	79	..	176	83	486	..	153,000	..		

STRENGTH OF THE ARMIES.

THE peace strength of the Austrian Army, including the Active Army, the Landwehr, the Hungarian Honvad, and the forces raised in Bosnia-Herzegovina is nearly half a million and the war strength is very much greater. She increased her army by 50 per cent. last year, and she is adding from 20,000 to 30,000 recruits every year, so that in fifteen years' time it was estimated that there would be an addition of 300,000 or 400,000 men to the force.

The Austrian navy consists of 8 capital ships built and 5 building, 6 old armoured ships, 3 armoured cruisers, and a number of smaller craft totalling 107 built and 40 building.

The war strength of Serbia is much smaller. The Field Army (first and second lines) which she put in the field in December, 1912, numbered only 195,000 men.

VIII. Chief European Passes and Railway Tunnels.

PYRENEES.

- (1) Col de Roncevaux, from St. Jean to Pampeluna.
- (2) Col de Canfranc, from Oloron to Saragossa.
- (3) Col de la Perche, from Perpignan to Lerida.

There are also railways and roads at each end of the mountains along the coast.

VOSGES.

- (1) Gap of Saverne, from Strasburg to Nancy.
- (2) Gap of Belfort, from Basle to Belfort.

ALPS.

- (1) Col de Tendre, from Nice to Cuneo (Cuni).
- (2) Col de Genevre, from Briancon to Susa.
- (3) Mt. Cenis (pass and tunnel) from Lyon to Turin.
- (4) Little St. Bernard, from Isère Valley to Aosta.
- (5) Great St. Bernard, from Martigny to Aosta.
- (6) Simplon (pass and tunnel) Brieg to Domo d'Ossola.
- (7) Splugen from Chur (Upper Rhine) to Chiavenna.
- (8) Stelvio from Tyrol to Bormio, on the Adda.
- (9) St. Gothard (pass and tunnel) Altdorf to Bellinzona.
- (10) Furca (W. of St. Gothard) connects the Rhine and Rhone Valleys.
- (11) Brenner (rail) from Adige Valley to Innsbruck.

(12) Arlberg (Switzerland to Tyrol) tunnel, from Feldkirch on Upper Rhine to Landeck, on the Inn.

(13) Puster-Thal (tunnel) from Adige Valley to the Upper Drave.

(14) Semmering (tunnel) through Noric Alps, connects Upper Drave with Vienna.

(15) Adelsburg (railway) from Trieste and Pola to Laibach.

(16) Scharnitz (N. Tyrol) rail from Innsbruck to Munich.

ERZ-GEBIRGE.

Schandau, railway along Elbe, from Prague to Dresden.

CARPATHIANS.

(1) Iron Gate

(2) Vulkan } Railways from Austria to Bukharest.
(3) Tomos } (Roumania).

(4) Rothenthurm, pass, Austria to Roumania, along Aluta Valley.

BALKANS.

(1) Shipka
(2) Karnabad } Join Bulgaria with Eastern Roumania.
(3) Selimno }
(4) Pravadi }

(5) Trajan's Gate (railway), between Balkans and Despoto Dag. The route to Constantinople.

OLYMPUS.

(1) Meluna }
(2) Reveni } From Turkey to Thessaly (Greece).
(3) Nezeros }

CAUCASUS.

Dariel (military road) from Vladikavkaz to Tiflis.

